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Problem P
Unread Messages
Time Limit: 1

There is a group of people in an internet email message group. Messages are sent to all members of the group, and no two messages are sent at the same time.

Immediately before a person sends a message, they read all their unread messages up to that point. Each sender also reads their own message the moment it is sent. Therefore, a person's unread messages are exactly the set of messages sent after that person's last message.

Each time a message is sent, compute the total number of unread messages over all group members.

Input

The first line of input contains two integers n ($1 \leq n \leq 10^9$) and m ($1 \leq m \leq 1{,}000$), where n is the number of people in the group, and m is the number of messages sent. The group members are identified by number, 1 through n.

Each of the next m lines contains a single integer s ($1 \leq s \leq n$), which is the sender of that message. These lines are in chronological order.

Output

Output m lines, each with a single integer, indicating the total number of unread messages over all group members, immediately after each message is sent.

Sample Input 1

```
2 4
1
2
1
2
```

Sample Output 1

```
1
1
1
1
```

Sample Input 2

Sample Output 2

```
3  9
1
2
3
2
1
3
3
2
1
```

```
2
3
3
4
3
3
5
4
3
```